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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,324	02/14/2002	Sung-Hyuk Shin	I-2-124.3US	1110
24374	7590	09/08/2004	EXAMINER	
VOLPE AND KOENIG, P.C. DEPT. ICC UNITED PLAZA, SUITE 1600 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103			GANDHI, DIPAKKUMAR B	
			ART UNIT	PAPER NUMBER
			2133	
DATE MAILED: 09/08/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/075,324

Applicant(s)

SHIN, SUNG-HYUK

Examiner

Dipakkumar Gandhi

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) #
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/14/02.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Art Unit: 2133

## DETAILED ACTION

### *Oath/Declaration*

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:  
The specification to which the oath or declaration is directed has not been adequately identified.  
See MPEP § 602.

The title of the invention in the oath/declaration is different from the title of the invention in the specification of the application.

### *Claim Objections*

2. Claim 1 is objected to because of the following informalities:  
On page 15, line 2 of the claim 1, "k+1" is incorrect. It should be --k=1--. Appropriate correction is required.
3. Claim 8 is objected to because of the following informalities:  
On page 17, line 1 of the claim 8, "method of claim 5" is incorrect. It should be --method of claim 6--.  
Appropriate correction is required.
4. Claim 11 is objected to because of the following informalities:  
On page 18, line 2 of the claim 11, "k+1" is incorrect. It should be --k=1--. Appropriate correction is required.

### *Double Patenting*

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Art Unit: 2133

6. Claim 1 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 and 5 of U.S. Patent No. 6,772,391 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 in the present application is a subset of claims 1 and 5 of the U.S. Patent No. 6,772,391 B1.

7. Claim 2 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 5 of U.S. Patent No. 6,772,391 B1 as applied to claim 1 above, and further in view of Ziv et al. (US 5,703,902).

As per claim 2, claims 1 and 5 of U.S. Patent No. 6,772,391 B1 substantially teaches the claimed invention described in claim 1 (as rejected above).

However claims 1 and 5 of U.S. Patent No. 6,772,391 B1 do not explicitly teach the specific use of the method, further comprising the steps of generating a set of tail bits for each said input bit set; and applying said tail bit set to reset the registers of both said first and second encoders.

Ziv et al. in an analogous art teach that CRC and tail bit generator 112 computes a set of check bits for data at certain data rates and also generates a set of tail bits for each frame (figure 1, col. 6, lines 4-6, Ziv et al.). Ziv et al. also teach that tail bits can be used at the end of each frame to reset convolutional encoder 114 to an all-zero state in preparation for the next frame (figure 1, col. 6, lines 26-28, Ziv et al.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify claims 1 and 5 of U.S. Patent No. 6,772,391 B1 with the teachings of Ziv et al. by including an additional step of using the method, further comprising the steps of generating a set of tail bits for each said input bit set; and applying said tail bit set to reset the registers of both said first and second encoders.

This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that generating a set of tail bits for each said input bit set; and applying said tail bit set to reset the registers of both the first and second encoders would provide the opportunity to reset the encoders to prepare the encoders for encoding next input bit set.

Art Unit: 2133

8. Claim 3 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 5 of U.S. Patent No. 6,772,391 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 3 in the present application is a subset of claim 5 of U.S. Patent No. 6,772,391 B1.

9. Claim 4 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 5 of U.S. Patent No. 6,772,391 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 4 in the present application is a part of claim 5 of U.S. Patent No. 6,772,391 B1.

10. Claim 5 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 5 of U.S. Patent No. 6,772,391 B1 and Ziv et al. (US 5,703,902) as applied to claim 2 above and further in view of Erož et al. (US 2002/0083395 A1).

As per claim 5, claims 1 and 5 of U.S. Patent No. 6,772,391 B1 and Ziv et al. substantially teach the claimed invention described in claim 2 (as rejected above).

However claims 1 and 5 of U.S. Patent No. 6,772,391 B1 and Ziv et al. do not explicitly teach the specific use of the method, further comprising the steps of: a) acknowledging that encoding by said first and second encoder is complete; b) switching inputs to said first and second encoder from an information bit stream and a permuted bit stream respectively to common feedback from said first constituent encoder last stage; and c) incrementing the number of tail bits received from said feedback until said number of tail bits are greater than the number of registers used in said first constituent encoder, and if not, repeat steps b-c.

Erož et al. in an analogous art teach In FIG. 1, after message bits  $X(t)$  are encoded, a switch 12 is moved to a feedback position to allow the generation of three (3) consecutive tail input bits, in this example, generated from the contents of each of three shift registers 18, 21, and 22 (also referred to herein as a first shift register 18, a second shift register 21, and a third shift register 22). In general, a number of tail input bits  $X(t)$ ,  $X'(t)$  for terminating a constituent encoder is equal to a number of shift registers in that encoder (page 1-2, paragraph 16, Erož et al.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify claims 1 and 5 of U.S. Patent No. 6,772,391 B1 with the teachings of Eroo et al. by including an additional step of using the method, further comprising the steps of: a) acknowledging that encoding by said first and second encoder is complete; b) switching inputs to said first and second encoder from an information bit stream and a permuted bit stream respectively to common feedback from said first constituent encoder last stage; and c) incrementing the number of tail bits received from said feedback until said number of tail bits are greater than the number of registers used in said first constituent encoder, and if not, repeat steps b-c.

This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that it would provide the opportunity to allow the generation of consecutive tail input bits equal to a number of shift registers in the encoder for zeroing out each respective shift register in the encoder.

11. Claim 6 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 and 5 of U.S. Patent No. 6,772,391 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 6 in the present application is a subset of claims 1 and 5 of the U.S. Patent No. 6,772,391 B1. Transmission method including encoding in claim 6 of present application and a method of encoding in claim 1 of present application are not different inventions.

12. Claim 7 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 5 of U.S. Patent No. 6,772,391 B1 as applied to claim 6 above, and further in view of Ziv et al. (US 5,703,902).

As per claim 7, claims 1 and 5 of U.S. Patent No. 6,772,391 B1 substantially teaches the claimed invention described in claim 6 (as rejected above).

However claims 1 and 5 of U.S. Patent No. 6,772,391 B1 do not explicitly teach the specific use of the transmission method, further comprising the steps of generating a set of tail bits for each said input bit set; and applying said tail bit set to reset the registers of both said first and second encoders.

Art Unit: 2133

Ziv et al. in an analogous art teach that the communication path used by a base station transmitting data frames to a subscriber unit is called the "forward link" (col. 1, lines 14-16, Ziv et al.). Ziv et al. also teach that CRC and tail bit generator 112 computes a set of check bits for data at certain data rates and also generates a set of tail bits for each frame (figure 1, col. 6, lines 4-6, Ziv et al.). Ziv et al. also teach that tail bits can be used at the end of each frame to reset convolutional encoder 114 to an all-zero state in preparation for the next frame (figure 1, col. 6, lines 26-28, Ziv et al.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify claims 1 and 5 of U.S. Patent No. 6,772,391 B1 with the teachings of Ziv et al. by including an additional step of using the transmission method, further comprising the steps of generating a set of tail bits for each said input bit set; and applying said tail bit set to reset the registers of both said first and second encoders.

This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that generating a set of tail bits for each said input bit set; and applying said tail bit set to reset the registers of both the first and second encoders would provide the opportunity to reset the encoders to prepare the encoders for encoding next input bit set.

13. Claim 8 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 5 of U.S. Patent No. 6,772,391 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 8 in the present application is a subset of claim 5 of U.S. Patent No. 6,772,391 B1. Transmission method including selective reordering in claim 8 of present application and a method including selective reordering in claim 3 of present application are not different inventions.

14. Claim 9 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 5 of U.S. Patent No. 6,772,391 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 9 in the present application is a part of claim 5 of U.S. Patent No. 6,772,391 B1. Transmission method comprising incrementing the



Art Unit: 2133

integer bit count in claim 9 of present application and a method comprising incrementing the integer bit count in claim 4 of present application are not different inventions.

15. Claim 10 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 5 of U.S. Patent No. 6,772,391 B1 and Ziv et al. (US 5,703,902) as applied to claim 7 above and further in view of Eroz et al. (US 2002/0083395 A1).

As per claim 10, claims 1 and 5 of U.S. Patent No. 6,772,391 B1 and Ziv et al. substantially teach the claimed invention described in claim 7 (as rejected above).

However claims 1 and 5 of U.S. Patent No. 6,772,391 B1 and Ziv et al. do not explicitly teach the specific use of the transmission method, further comprising the steps of: a) acknowledging that encoding by said first and second encoder is complete; b) switching inputs to said first and second encoder from an information bit stream and a permuted bit stream respectively to common feedback from said first constituent encoder last stage; and c) incrementing the number of tail bits received from said feedback until said number of tail bits are greater than the number of registers used in said first constituent encoder, and if not, repeat steps b-c.

Eroz et al. in an analogous art teach In FIG. 1, after message bits  $X(t)$  are encoded, a switch 12 is moved to a feedback position to allow the generation of three (3) consecutive tail input bits, in this example, generated from the contents of each of three shift registers 18, 21, and 22 (also referred to herein as a first shift register 18, a second shift register 21, and a third shift register 22). In general, a number of tail input bits  $X(t)$ ,  $X'(t)$  for terminating a constituent encoder is equal to a number of shift registers in that encoder (page 1-2, paragraph 16, Eroz et al.). Eroz et al. also teach that a number of transmitted tail output bits during trellis termination is  $1/R$  for each trellis branch wherein  $R$  is the turbo code rate employed during information bit transmission (page 2, paragraph 30, Eroz et al.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify claims 1 and 5 of U.S. Patent No. 6,772,391 B1 with the teachings of Eroz et al. by including an additional step of using the transmission method, further comprising the steps of: a) acknowledging that encoding by said first and second encoder is complete; b) switching inputs to said first and second encoder from an information bit stream and a permuted bit stream respectively to

Art Unit: 2133

common feedback from said first constituent encoder last stage; and c) incrementing the number of tail bits received from said feedback until said number of tail bits are greater than the number of registers used in said first constituent encoder, and if not, repeat steps b-c.

This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that it would provide the opportunity to allow the generation of consecutive tail input bits equal to a number of shift registers in the encoder for zeroing out each respective shift register in the encoder.

16. Claim 11 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 and 5 of U.S. Patent No. 6,772,391 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 11 in the present application is a subset of claims 1 and 5 of the U.S. Patent No. 6,772,391 B1. A multi-state register in claim 5 of U.S. Patent No. 6,772,391 B1 and a register in the claim 11 of the present application are not different inventions.

Art Unit: 2133

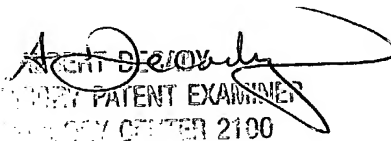
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dipakkumar Gandhi whose telephone number is 703-305-7853. The examiner can normally be reached on 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Dipakkumar Gandhi  
Patent Examiner



ALBERT DECADY  
SUPERVISOR  
EBC CENTER 2100